Patent No. 6,093,080 to Inaba *et al.* ("Inaba"). Claims 6, 11-17, 28, 31-33, 40, 43-45, 51, 53-55, 64-65, 82 and 84 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner is thanked for her careful consideration of the present application and for her careful review of the prior art. The Examiner is further thanked for her determination of allowable subject matter in the present application.

In order to expedite the allowance of subject matter in the present case, applicant has amended claims in accordance with the Examiner's indication of allowable subject matter. It is understood, however, that applicant does not agree with the Examiner's grounds for rejection of claims in the present case, and that the claims are amended solely for the purpose of expediting the allowance of claims in the present case. Accordingly, applicant reserves the right to introduce the present claims in non-amended form in a subsequent continuation, divisional or continuation-in-part application.

Claims 1, 12, 13, 22, 35, 44-46, 53, 55, 60, 65, 78, 82 and 84 are herby amended and claims 6, 11, 28, 43, 50, 51, 62, 64, 67-70, 72-77, 79 and 81 are hereby canceled in the instant amendment. Claims 85-222 are hereby added as new claims. Therefore, claims 1-4, 7, 10, 12-17, 22-27, 29, 31-41, 44-47, 53-55, 57-60, 65, 78, 82 and 84-222 are presented for examination.

Claim 1 is amended to include the limitations of claim 6. Claim 1 is therefore in condition for allowance. Claims depending from amended claim 1 are also allowable based upon the allowability of claim 1 and further in view of the additional limitations recited therein.

Claim 22 is also amended to include the limitations of claim 28. Claim 22 is in condition for allowance. Claims depending from amended claim 22 are also allowable based upon the allowability of claim 22 and further in view of the additional limitations recited therein.

Claim 35 is amended to include the limitations of claim 43. Claim 35 is therefore in condition for allowance. Claims depending from amended claim 35 are also allowable based upon the allowability of claim 35 and further in view of the additional limitations recited therein.

Claim 46 is amended to include the limitations of claims 50 and 51. Claim 46 is therefore in condition for allowance. Claims depending from amended claim 46 are also

allowable based upon the allowability of claim 46 and further in view of the additional limitations recited therein.

Claim 60 is amended to include the limitations of claims 62 and 63. Claim 60 is therefore in condition for allowance. Claims depending from amended claim 60 are also allowable based upon the allowability of claim 60 and further in view of the additional limitations recited therein.

Claim 78 is amended to include the limitations of claims 79 and 81. Claim 78 is therefore in condition for allowance. Claims depending from amended claim 78 are also allowable based upon the allowability of claim 78 and further in view of the additional limitations recited therein.

Claims 85-222 are new. No new matter has been added. Claim 85 is former claim 1 that has been amended to include the limitations present in claim 11. Claim 96 is former claim 1 that has been amended to include the limitations present in claims 11 and 12. Claim 105 is former claim 1 that has been amended to include the limitations present in claims 11 and 13. Claim 114 is former claim 1 that has been amended to include the limitations present in claim 14. Claim 124 is former claim 1 that has been amended to include the limitations present in claims 14 and 15. Claim 136 is former claim 1 that has been amended to include the limitations present in claims 14 and 16. Claim 147 is former claim 1 that has been amended to include the limitations present in claims 14 and 17.

Claim 158 is former claim 22 that has been amended to include the limitations present in claim 31. Claim 169 is former claim 22 that has been amended to include the limitations present in claims 31 and 32. Claim 179 is former claim 22 that has been amended to include the limitations present in claims 31 and 33.

Claim 189 is former claim 35 that has been amended to include the limitations present in claims 43 and 44. Claim 197 is former claim 35 that has been amended to include the limitations present in claims 43 and 45.

Claim 205 is former claim 46 that has been amended to include the limitations present in claims 50 and 53. Claim 210 is former claim 46 that has been amended to include the limitations present in claims 50, 53 and 54. Claim 214 is former claim 46 that has been amended to include the limitations present in claims 50 and 55.

Claim 219 is former claim 60 that has been amended to include the limitations present in claims 62 and 65.

Claim 221 is former claim 78 that has been amended to include the limitations present in claims 79, 81 and 84.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with Markings to Show Changes Made**".

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Amended) An apparatus for monitoring conditioning of a planarizing medium used for planarizing a microelectronic substrate, comprising:

a conditioning body having a conditioning surface configured to engage a planarizing surface of the planarizing medium, at least one of the conditioning body and the planarizing medium being movable relative to the other of the conditioning body and the planarizing medium to condition the planarizing surface; [and]

a first support member having first and second ends and being rotatably coupled toward the first end to the conditioning body, the second end of the first support member extending away from the conditioning body;

a sensor coupled to the conditioning body to detect a frictional force in a plane of the planarizing surface, the frictional force being imparted to the conditioning body by the planarizing medium when the one of the conditioning body and the planarizing medium is moved relative to the other of the conditioning body and the planarizing medium[.]; and

a second support member coupled at a pivotable coupling to the first support member toward the second end of the first support member, the sensor being positioned between the first and second support members, the first support member being pivotable relative to the second support member to transmit a force to the sensor corresponding to the frictional force.

12. (Amended) The apparatus of claim [11] 1 wherein the piston has a generally circular cross-sectional shape and the cylinder has an aperture with a generally circular cross-sectional shape for receiving the piston.

13. (Amended) The apparatus of claim [11] 1 wherein the piston has a generally rectangular cross-sectional shape and the cylinder has an aperture with a generally rectangular cross-sectional shape for receiving the piston.

22. (Amended) An apparatus for measuring forces during conditioning of a chemical-mechanical planarizing surface, comprising:

a planarizing medium having a planarizing surface for removing material from a microelectronic substrate, the planarizing surface defining a planarizing surface plane;

a conditioning body adjacent to the planarizing medium, at least one of the conditioning body and the planarizing medium being movable relative to the other of the conditioning body and the planarizing medium for conditioning the planarizing surface, the conditioning body and the planarizing medium generating a force in the planarizing surface plane when the one of the conditioning body and the planarizing medium moves relative to the other of the conditioning body and the planarizing medium;

a first support member having first and second ends and being rotatably coupled toward the first end to the conditioning body, the second end of the first support member extending away from the conditioning body;

a second support member coupled at a pivotable coupling to the first support member toward the second end of the first support member, the sensor being positioned between the first and second support members, the first support member being pivotable relative to the second support member to transmit a force to the sensor corresponding to the drag force; and

a sensor operatively coupled to the conditioning body to detect the force.

35. (Amended) An apparatus for monitoring conditioning of a planarizing medium used for chemical-mechanical planarization of a microelectronic substrate, comprising:

a conditioning body having a conditioning surface configured to engage a planarizing surface of the planarizing medium, at least one of the conditioning body and the planarizing medium being movable relative to the other of the conditioning body and the planarizing medium to condition the planarizing surface, the conditioning body generating a drag force generally parallel to the planarizing surface;

a piston;

a cylinder having an open end and a closed end, the cylinder slidably receiving the piston, at least one of the piston and the cylinder being coupled to the conditioning body to slide relative to the other of the piston and the cylinder under the influence of the force on the

conditioning body, the piston and the cylinder defining a gap between an end of the piston and the closed end of the cylinder, the sensor being positioned to detect relative motion between the piston and the cylinder;

an actuator coupled to the conditioning body with a support assembly to control at least one of a generally normal force between the conditioning body and the planarizing medium and a position of the conditioning body relative to the planarizing medium;

a sensor coupled to the support assembly to detect the drag force; and

a feedback device coupled to the actuator to control activation of the actuator in response to a signal received from the force sensor.

44. (Amended) The apparatus of claim [43] 35 wherein the piston is sealably engaged with the cylinder and the sensor includes a pressure gauge positioned within the gap to detect a change in pressure in the gap when one of the piston and the cylinder moves relative to the other.

45. (Amended) The apparatus of claim [43] 35, further comprising a biasing member coupled to the cylinder and the piston to bias the piston toward or away from the cylinder.

46. (Amended) A method for monitoring conditioning of a planarizing medium used for planarizing a microelectronic substrate, comprising:

moving at least one of the planarizing medium and a conditioning body relative to the other of the planarizing medium and the conditioning body while the conditioning body is engaged with a planarizing surface of the planarizing medium, wherein the conditioning body is coupled to a support member for supporting the conditioning body relative to the planarizing medium, the support member including a generally upwardly extending portion coupled to the conditioning body and a generally laterally extending portion pivotably coupled to the upwardly extending portion; and

monitoring the conditioning body to detect a force of the planarizing medium on the conditioning body, wherein monitoring the conditioning body includes measuring a force

transmitted to the support member by the conditioning body by detecting a force between the upwardly extending portion and the laterally extending portion with a force sensor.

53. (Amended) The method of claim [50] 46 wherein the support member includes a piston slidably received in a cylinder and monitoring the conditioning body includes detecting a movement of one of the piston and the cylinder relative to the other of the piston and the cylinder.

55. (Amended) The method of claim [50] 46 wherein the support member includes a piston slidably and sealably received in a cylinder to form a sealed space between an end of the cylinder and an end of the piston, further wherein monitoring the conditioning body includes detecting a pressure within the sealed space.

60. (Amended) A method for monitoring conditioning of a planarizing medium used for planarizing a microelectronic substrate, the method comprising:

coupling a sensor to a conditioning body, wherein the conditioning body is coupled to a support member for supporting the conditioning body relative to the planarizing medium, and the support member includes a piston slidably received in a cylinder;

engaging the conditioning body with the planarizing medium and moving at least one of the conditioning body and the planarizing medium relative to the other of the conditioning body and the planarizing medium while the conditioning body engages the planarizing medium; and

monitoring the conditioning body to detect a frictional force between the conditioning body and the planarizing medium, wherein monitoring the conditioning body includes measuring a force transmitted to the support member by the conditioning body by detecting a movement of one of the piston and the cylinder relative to the other of the piston and the cylinder.

65. (Amended) The method of claim [62] 60 wherein the support member includes a piston slidably and sealably received in a cylinder to form a sealed space between an

end of the cylinder and an end of the piston, further wherein monitoring the conditioning body includes detecting a pressure within the sealed space.

78. (Amended) A method for conditioning a planarizing medium used for planarizing a semiconductor substrate, the method comprising:

engaging a conditioning body with the planarizing medium, wherein the conditioning body is coupled to a support member for supporting the conditioning body relative to the planarizing medium, and further wherein the support member includes a generally upwardly extending portion coupled to the conditioning body and a generally laterally extending portion pivotably coupled to the upwardly extending portion;

moving at least one of the conditioning body and the planarizing medium relative to the other of the conditioning body and the planarizing medium to remove material from the planarizing medium; and

maintaining an approximately constant frictional force between the conditioning body and the planarizing medium by adjusting a relative velocity between the conditioning body and the planarizing medium, wherein maintaining an approximately constant frictional force includes selecting a target frictional force, detecting a force between the upwardly extending portion and the laterally extending portion coupled to the conditioning body, and adjusting the relative velocity until the force is approximately equal to the target frictional force, and further wherein measuring a force transmitted to the support member includes detecting a force between the upwardly extending portion and the laterally extending portion with a force sensor.

82. (Amended) The method of claim [81] 78 wherein the support member includes a generally upwardly extending portion coupled to the conditioning body and a generally laterally extending portion pivotably coupled to the upwardly extending portion, further wherein detecting the force includes detecting a force between the upwardly extending portion and the laterally extending portion with a force sensor.

84. (Amended) The method of claim [81] 78 wherein the support member includes a piston slidably received in a cylinder and detecting the force includes detecting a

movement of one of the piston and the cylinder relative to the other of the piston and the cylinder.